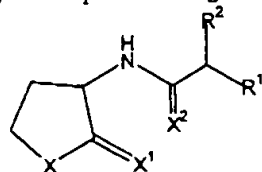


CLAIMS PENDING AFTER AMENDMENT

1. (Amended) A compound having the structure:



wherein,

R¹ is a member selected from —H, —OH, and (=O);

R² is a member selected from reactive functional groups, alkyl groups terminally substituted with a reactive functional group and internally substituted alkyl groups terminally substituted with a reactive functional group;

X is a member selected from —O—, —S— and —NH—; and

X¹ and X² are members independently selected from O and S.

2. The compound according to claim 1, wherein R² is an internally substituted alkyl group terminally substituted with a reactive functional group.

3. The compound according to claim 2, wherein the alkyl group is internally substituted with a functional group that is a member selected from —OH, (=O) and combinations thereof.

4. The compound according to claim 1, wherein the reactive functional group is a member selected from —OR³, —NHR⁴, —COR⁵, —SH and —CH₂X³

wherein,

—OR³ is a member selected from hydroxy, alkyl sulfonate and aryl sulfonate groups;

R⁴ is a member selected from H, C₁-C₆ alkyl, C₁-C₆ substituted alkyl, aryl and substituted aryl groups;

R⁵ is a member selected from H, X³ and —OR⁶, wherein R⁶ a member selected from alkyl, substituted alkyl, aryl, substituted aryl, heteroaryl,

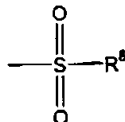
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11 substituted heteroaryl, heterocyclyl and substituted heterocyclyl groups;  
12 and  
13  $X^3$  is a halogen.

1 5. The compound according to claim 1, wherein the compound is a single  
2 stereoisomer.

1 6. The compound according to claim 4, wherein  $R^3$  is



(V)

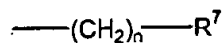
2 wherein,  
3

4  $R^8$  is a member selected from alkyl, substituted alkyl, aryl and substituted aryl  
5 groups.

1 7. The compound according to claim 1, wherein the alkyl and the  
2 internally substituted alkyl groups are members selected from  $C_1$ - $C_{20}$  saturated straight-chain,  
3  $C_1$ - $C_{20}$  saturated branched-chain,  $C_1$ - $C_{20}$  unsaturated straight-chain,  $C_1$ - $C_{20}$  unsaturated  
4 branched-chain alkyl and internally substituted alkyl groups.

1 8. The compound according to claim 7, wherein the alkyl and internally  
2 substituted alkyl groups are members selected from  $C_5$ - $C_{10}$  saturated straight-chain,  $C_5$ - $C_{10}$   
3 saturated branched-chain,  $C_5$ - $C_{10}$  unsaturated straight-chain,  $C_5$ - $C_{10}$  unsaturated branched-  
4 chain alkyl and internally substituted alkyl groups.

1 9. A compound according to claim 1, wherein  $R^2$  has the structure:



(III)

2 wherein,  
3

4  $R^7$  a reactive functional group; and

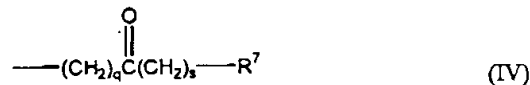
5 n is a number from 1 to 20, inclusive.

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10. The compound according to claim 9, wherein n is a number from 2 to 9, inclusive.

11. A compound according to claim 1, wherein R<sup>2</sup> has the structure:



wherein,

R<sup>7</sup> is a reactive functional group; and

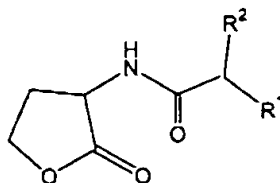
q and s are numbers independently selected from 1 to 20, inclusive.

12. The compound according to claim 11, wherein s is a number from 2 to 9, inclusive.

13. A pharmaceutical formulation comprising a pharmaceutically acceptable carrier and a compound according to claim 1, said reactive functional group of said compound being covalently bound to a biologically active agent.

14. The pharmaceutical formulation according to claim 13, wherein said biologically active agent is a member selected from antibiotics, immune stimulators and combinations thereof.

15. A compound having the structure:



wherein,

R<sup>1</sup> is a member selected from H, OH, and (=O); and

R<sup>2</sup> is a member selected from H, reactive functional groups, alkyl groups terminally substituted with a reactive functional group and internally substituted alkyl groups terminally substituted with a reactive functional

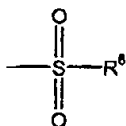
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8 group, with the proviso that when  $R^2$  is  $-\text{OH}$ ,  $R^1$  is a member selected  
9 from  $\text{OH}$ , and  $(=\text{O})$ .

1 16. The compound according to claim 15, wherein the reactive functional  
2 group is a member selected from  $-\text{OR}^3$ ,  $-\text{NHR}^4$ ,  $-\text{COR}^5$ ,  $\text{SH}$  and  $\text{CH}_2\text{X}^3$   
3 wherein,  
4  $-\text{OR}^3$  is a member selected from hydroxy, and a species such that  $-\text{OR}^3$  is a  
5 leaving group;  
6  $R^4$  is a member selected from  $\text{H}$ ,  $\text{C}_1\text{-C}_6$  alkyl,  $\text{C}_1\text{-C}_6$  substituted alkyl, aryl and  
7 substituted aryl groups;  
8  $R^5$  is a member selected from  $\text{H}$ , halogen and  $-\text{OR}^6$ , wherein  $R^6$  is species  
9 such that  $-\text{OR}^6$  is a leaving group; and  
10  $\text{X}^3$  is a halogen.

1 17. The compound according to claim 16, wherein  $R^3$  is



(V)

2  
3 wherein,

4  $R^6$  is a member selected from alkyl, substituted alkyl, aryl and substituted aryl  
5 groups.

1 18. The compound according to claim 16, wherein  $R^6$  is a member  
2 selected from alkyl, substituted alkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl,  
3 heterocyclyl and substituted heterocyclyl groups.

1 19. The compound according to claim 15, wherein the alkyl and the  
2 internally substituted alkyl groups are members selected from  $\text{C}_1\text{-C}_{20}$  saturated straight-chain,  
3  $\text{C}_1\text{-C}_{20}$  saturated branched-chain,  $\text{C}_1\text{-C}_{20}$  unsaturated straight-chain,  $\text{C}_1\text{-C}_{20}$  unsaturated  
4 branched-chain alkyl and internally substituted alkyl groups.

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20. The compound according to claim 19, wherein the alkyl and internally substituted alkyl groups are members selected from C<sub>5</sub>-C<sub>10</sub> saturated straight-chain, C<sub>5</sub>-C<sub>10</sub> saturated branched-chain, C<sub>5</sub>-C<sub>10</sub> unsaturated straight-chain, C<sub>5</sub>-C<sub>10</sub> unsaturated branched-chain alkyl and internally substituted alkyl groups.

21. A compound according to claim 15, wherein R<sup>2</sup> has the structure:



wherein,

R<sup>7</sup> is a reactive functional group; and

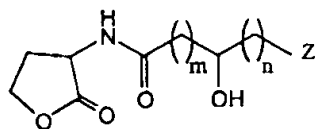
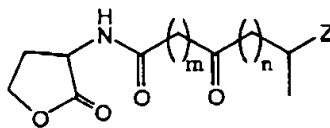
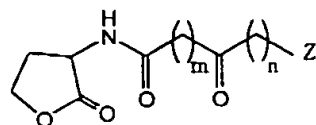
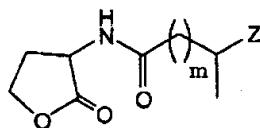
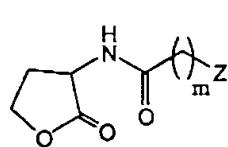
n is a number from 1 to 20, inclusive.

22. The compound according to claim 21, wherein n is a number from 2 to 9, inclusive.

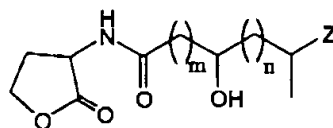
23. The compound according to claim 15, wherein R<sup>2</sup> is a member selected from the group consisting of—COOH, —OH, —NH<sub>2</sub>, and —SH.

24. The compound according to claim 21, wherein R<sup>7</sup> is a member selected from the group consisting of—COOH, —OH, —NH<sub>2</sub>, and —SH.

25. A compound having a structure that is a member selected from:



and



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3            wherein,

4            m is a number selected from 1 to 20, inclusive;

5            n is a number from 0 to 20, inclusive; and

6            Z is a reactive functional group.

1            26.    The compound according to claim 25, wherein m and n are numbers  
2 independently selected from 2 to 9, inclusive.

1            27.    The compound according to claim 25, wherein Z is a member selected  
2 from —NH<sub>2</sub>, —COOH, —SH, and —OH.

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